

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,062,498 B2
APPLICATION NO. : 10/027914
DATED : June 13, 2006
INVENTOR(S) : Al-Kofahi et al.

Page 1 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

The title page showing the illustrative figure should be deleted to be replaced with the attached title page.

On the title page, item (56), under "Foreign Patent Documents", in column 2, line 1, after "11/2000" insert -- G06F 17/30 --.

On the title page, item (56), under "Other Publications", in column 2, line 1, delete "et al," and insert -- et al., --, therefor.

On the title page, item (74), "Attorney, Agent, or Firm", in column 2, line 1, delete "Lunberg," and insert -- Lundberg, --, therefor.

On page 2, item (56), under "Other Publications", in column 1, line 1, delete "et al," and insert -- et al., --, therefor.

On page 2, item (56), under "Other Publications", in column 1, line 4, delete "et al," and insert -- et al., --, therefor.

On page 2, item (56), under "Other Publications", in column 1, line 13, delete "Managment" and insert -- Management --, therefor.

On page 2, item (56), under "Other Publications", in column 2, line 28, delete "224-321." and insert -- 224-231. --, therefor.

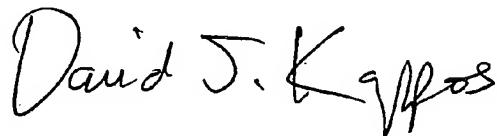
The drawing sheet, consisting of Fig. 2, should be deleted to be replaced with the drawing sheet, consisting of Fig. 2, as shown on the attached page.

In the Drawings on Sheet 2 of 6, in Fig. 2 (Block - 232), line 1, delete "COMPUT=" and insert -- COMPUTE --, therefor.

In the Drawings on Sheet 2 of 6, in Fig. 2 (Block - 232), line 2, delete "BAS=D" and insert -- BASED --, therefor.

Signed and Sealed this

Twenty-seventh Day of April, 2010



David J. Kappos
Director of the United States Patent and Trademark Office

In column 2, line 35, after “computing and” delete “and”.

In column 2, line 64, delete “320.” and insert -- 320; --, therefor.

In column 2, line 67, delete “100.” and insert -- 100; --, therefor.

In column 4, line 8, delete “Exemplary Headnote” and insert -- Exemplary Headnote: --, as a new heading on line 9.

In column 4, line 14, delete “supenor” and insert -- superior --, therefor.

In column 4, line 14, after “authority” insert -- . --.

In column 4, line 15, after “identifier” insert -- : --.

In column 6, line 23, delete “ V_a ” and insert -- v_a --, therefor.

In column 6, line 25, delete “ $v_a = tf_a' \cdot idf_a'$ ” and insert -- $v_a = tf_a' * idf_a'$, --, therefor.

In column 6, line 26, delete “ tf_a' ” and insert -- tf_a' --, therefor.

In column 6, line 31, delete “ idf_a' ” and insert -- idf_a' --, therefor.

In column 6, line 32, delete “ idf_a' ” and insert -- idf_a' --, therefor.

In column 6, line 39, delete “ df_a' ” and insert -- df_a' --, therefor.

In column 7, line 49, delete ““-”” and insert -- “.” --, therefor.

In column 7, line 50, delete “ v_a' ” and insert -- V_a' --, therefor.

In column 7, line 50, delete “ v_h' ” and insert -- V_h' --, therefor.

In column 7, line 54, delete “teems” and insert -- terms --, therefor.

In column 7, line 64, delete “ $v_a^{c_n}$ ” and insert -- V_a^c --, therefor.

In column 7, line 64, delete “ v_a^c ” and insert -- V_a^c --, therefor.

In column 7, line 66, delete “ v_a^c ” and insert -- v_a^c --, therefor.

In column 7, line 67, delete “ $v_a^c = t f_a^c \cdot id f_a^c$,” and insert -- $v_a^c = t f_a^c \cdot id f_a^c$, --, therefor.

In column 8, line 1, delete “ $t f_a^c$ ” and insert -- $t f_a^c$ --, therefor.

In column 8, line 2, delete “ $id f_a^c$ ” and insert -- $id f_a^c$ --, therefor.

In column 8, line 3, delete “ $id f_a^c$ ” and insert -- $id f_a^c$ --, therefor.

In column 8, line 21, delete “ v_h^c ” and insert -- v_h^c --, therefor.

In column 8, line 23, delete “ v_h^c ” and insert -- v_h^c --, therefor.

In column 8, line 25, delete “ $v_h^c = t f_h^c \cdot id f_h^c$,” and insert -- $v_h^c = t f_h^c \cdot id f_h^c$, --, therefor.

In column 8, line 26, delete “ $t f_h^c$ ” and insert -- $t f_h^c$ --, therefor.

In column 8, line 27, delete “ $id f_h^c$ ” and insert -- $id f_h^c$ --, therefor.

In column 6, line 28, delete “ $id f_h^c$ ” and insert -- $id f_h^c$ --, therefor.

In column 10, line 51, delete “ CS_a^h ” and insert -- CS_a^h --, therefor.

In column 10, line 55, delete “ CS_a^h ” and insert -- CS_a^h --, therefor.

In column 10, line 61, delete “ $S_{a,i}^h$ ” and insert -- $S_{a,i}^h$ --, therefor.

In column 10, line 63, delete “i-th” and insert -- i-th --, therefor.

In column 11, line 8, delete “ CS_a^h ” and insert -- CS_a^h --, therefor.

In column 11, line 43, delete “ CS_a^h ” and insert -- CS_a^h --, therefor.

In column 15, line 13, delete “accord” and insert -- accordance --, therefor.

In column 15, line 38, delete “ F_c^1 ” and insert -- F_c^1 --, therefor.

In column 15, line 38, delete “ $F_{c'}^2$,” and insert -- $F_{c'}^1$ --, therefor.

In column 15, line 40, delete “ $|\{h_i|S_i^1=s\}|$ ” and insert -- $|\{h_i|S_i^1=s\}|$ --, therefor.

In column 15, line 45, delete “ $|\{h_i|S_i^2=s\}|$ ” and insert -- $|\{h_i|S_i^3=s\}|$ --, therefor.

In column 15, line 52, delete “ h_i ,” and insert -- h_i --, therefor.

In column 15, line 53, delete “ S_i^1 ” and insert -- S_i^1 --, therefor.

In column 15, line 54, delete “ h_1 ” and insert -- h_i --, therefor.

In column 15, line 55, delete “ S_i^2 ” and insert -- S_i^1 --, therefor.

In column 15, line 56, delete “ h_1 ” and insert -- h_i --, therefor.

In column 15, line 60, delete “ $|\{h_i|S_i^1=s\}|$ ” and insert -- $|\{h_i|S_i^1=s\}|$ --, therefor.

In column 15, line 62, delete “ $|\{h_i|S_i^2=s\}|$ ” and insert -- $|\{h_i|S_i^3=s\}|$ --, therefor.

In column 16, line 17, delete “decision-maker” and insert -- decisionmaker --, therefor.

In column 16, line 24, delete “EMBODIMENTS” and insert -- APPLICATIONS --, therefor.

In column 16, line 46, delete “all right” and insert -- alright --, therefor.

In column 16, line 65, delete “everywhere’s” and insert -- everywhere’s --, therefor.

In column 17, line 19, delete “nor-normally” and insert -- nor normally --, therefor.

In column 17, line 20, delete “offhis” and insert -- ofhis --, therefor.

In column 17, line 26, delete “quite” and insert -- quite --, therefor.

In column 17, lines 35–36, delete “thercin” and insert -- therein --, therefor.

In column 18, line 31, in Claim 3, delete “thresholds” and insert -- threshold --, therefor.

In column 18, line 33, in Claim 3, delete “threshold” and insert -- thresholds --, therefor.

In column 18, line 50, in Claim 7, delete “Tho” and insert -- The --, therefor.

(12) **United States Patent**
Al-Kofahi et al.

(10) Patent No.: **US 7,062,498 B2**
(45) Date of Patent: **Jun. 13, 2006**

(54) **SYSTEMS, METHODS, AND SOFTWARE
FOR CLASSIFYING TEXT FROM JUDICIAL
OPINIONS AND OTHER DOCUMENTS**

(75) Inventors: **Khalid Al-Kofahi, Webster, NY (US);
Peter Jackson, Burnsville, MN (US);
Timothy Earl Travers, Rochester, NY
(US); Alex Tyrell, Canandaigua, NY
(US)**

(73) Assignee: **Thomson Legal Regulatory Global
AG, Thalwil (CH)**

(*) Notice: **Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 401 days.**

(21) Appl. No.: **10/027,914**

(22) Filed: **Dec. 21, 2001**

(65) **Prior Publication Data**

US 2003/0101181 A1 May 29, 2003

Related U.S. Application Data

(60) Provisional application No. 60/336,862, filed on Nov. 2, 2001.

(51) Int. Cl. **G06F 17/00 (2006.01)**

(52) U.S. Cl. **707/101; 715/530**

(58) Field of Classification Search **707/100,
707/101; 715/530, 531**
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,961,152 A * 10/1990 Davis 706/13
5,054,093 A * 10/1991 Cooper et al. 382/159
5,157,783 A 10/1992 Anderson et al. 395/600
5,265,065 A 11/1993 Turtle 395/600
5,383,120 A * 1/1995 Zernik 704/10
5,418,948 A 5/1995 Turtle 395/600

5,434,932 A 7/1995 Scott 382/309
5,438,629 A * 8/1995 Moed et al. 382/156
5,488,725 A 1/1996 Turtle et al. 395/600
5,497,317 A 3/1996 Hawkins et al. 364/408
5,644,720 A 7/1997 Boll et al. 395/200.12
5,761,383 A * 6/1998 Engel et al. 706/14
5,778,397 A * 7/1998 Kupiec et al. 715/500
5,918,240 A * 6/1999 Kupiec et al. 715/531
5,991,755 A 11/1999 Noguchi et al. 707/3

(Continued)

FOREIGN PATENT DOCUMENTS

WO WO-00/67162 11/2000

OTHER PUBLICATIONS

Conrad et al, "A Cognitive Approach to Judicial Opinion
Structure: Applying Domain Expertise to Component
Analysis", ACM, May 2001, pp. 1-11.*

(Continued)

Primary Examiner—Uyen Le

(74) Attorney, Agent, or Firm—Schwegman, Lunberg,
Woessner & Kluth, P.A.

(57) **ABSTRACT**

To reduce cost and improve accuracy, the inventors devised systems, methods, and software to aid classification of text, such as headnotes and other documents, to target classes in a target classification system. For example, one system computes composite scores based on: similarity of input text to text assigned to each of the target classes; similarity of non-target classes assigned to the input text and target classes; probability of a target class given a set of one or more non-target classes assigned to the input text; and/or probability of the input text given text assigned to the target classes. The exemplary system then evaluates the composite scores using class-specific decision criteria, such as thresholds, ultimately assigning or recommending assignment of the input text to one or more of the target classes. The exemplary system is particularly suitable for classification systems having thousands of classes.

17 Claims, 6 Drawing Sheets

